

A. Choose the correct answer:

1.What is the smallest unit that can carry out all processes necessary for life?

- a) Tissue
- b) Organelle
- c) Cell
- d) Organ

2.Which scientist named "cells" after observing cork bark under a microscope?

- a) Antonie van Leeuwenhoek
- b) Robert Hooke
- c) Rudolf Virchow
- d) Theodor Schwann

3.Which of the following is a prokaryote?

- a) Mushroom
- b) Plant cell
- c) Bacteria
- d) Animal cell

4.What did Antonie van Leeuwenhoek call the living single-celled organisms he observed in pond water?

- a) Little animals
- b) Micro-compartments
- c) Pre-cells
- d) Cork units

5. What key structural characteristic distinguishes a eukaryotic cell from a prokaryotic cell?

- a) Presence of a cell wall
- b) Genetic material enclosed in a membrane-bound nucleus
- c) Ability to carry out life functions
- d) Presence of ribosomes

6. What level of magnification is needed on a microscope to view structures inside individual cells?

- a) 10×
- b) 100×
- c) 1,000× or higher
- d) 50×

7. A mystery cell measures 40 μm in size and contains membrane-bound organelles. How would you classify this cell based on scale and structure?

- a) Unicellular prokaryote
- b) Eukaryote, because of its size (10100Um) and membrane-bound structures
- c) Prokaryote, because it is larger than (10 Um)
- d) Non-cellular structure

8. Robert Hooke observed empty compartments in cork rather than living cells because:

- a) Cork is an inorganic mineral
- b) He examined dead plant cell walls where living contents had dried away
- c) His microscope had \$1,000\times\$ magnification
- d) Prokaryotic cells do not have internal contents

B: True or False:

- 1. All living organisms are made of one or more cells. ()
- 2. Bacteria are examples of multicellular organisms. ()
- 3. Eukaryotic cells are typically smaller than prokaryotic cells. ()
- 4. Individual cells are visible to the unaided human eye at scale larger than 100 μm . ()
- 5. Rudolf Virchow contributed to cell theory by claiming that all cells come from pre-existing cells. ()
- 6. In a prokaryotic cell, genetic material floats freely in the cytoplasm. ()
- 7. At 100 $\times$ magnification, structures inside individual cells become clearly visible. ()
- 8. Schleiden and Schwann demonstrated that new cells appear spontaneously from non-living materials. ()

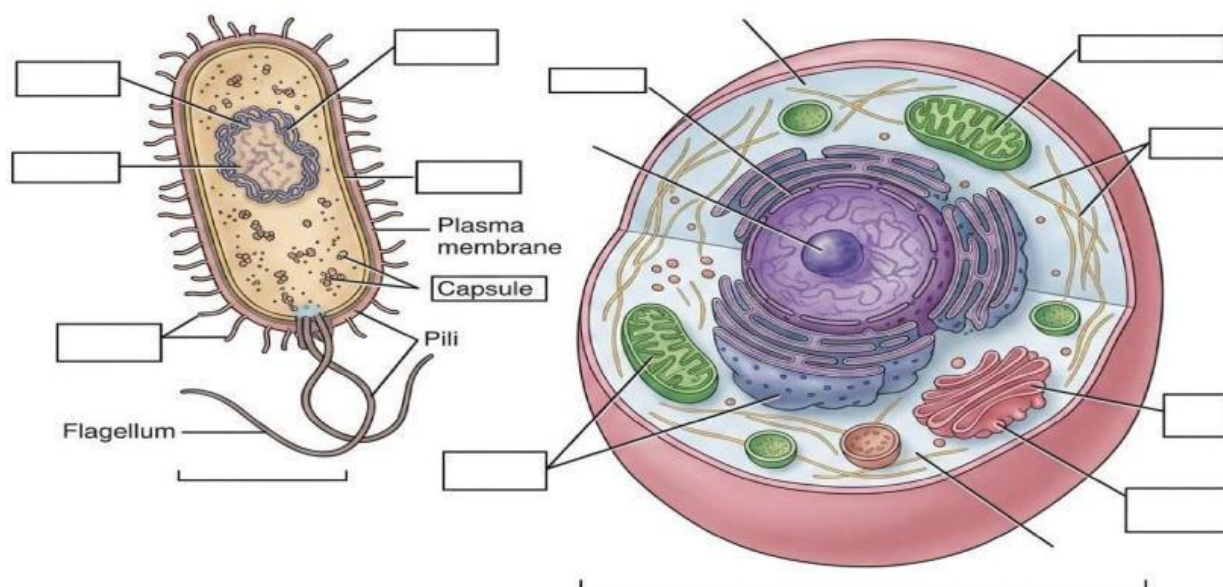
C: Fill in the Blanks:

1. A _____ organism is made of exactly one cell.
2. The three points of evidence gathered by scientists over time formed the _____ theory.
3. Plant and animal cells are examples of _____ cells.
4. Prokaryotic cells typically range in size from _____ to _____ μm .
5. The single cell of a Paramecium must carry out all life functions, including obtaining energy, removing waste, and _____.
6. A typical animal cell measures approximately _____ in diameter.
7. At $10\times$ magnification under a microscope, you can see the overall shape of a _____ or filament.
8. In a prokaryote, the region where the genetic material floats in the cytoplasm is called the _____ region.
9. The width of a single human hair is about _____ μm , which is roughly the size of the largest cells.
10. In 1830s, Matthias Schleiden and Theodor Schwann claimed that all _____ and _____ are made of cells.

DATE _____

SCIENCE BOOKLET
GRADE (7)

D. complete:



DATE _____

SCIENCE BOOKLET
GRADE (7)

E. Match:

Column A	Column B
1. Robert Hooke	A. Claimed all cells come from pre-existing cells
2. Antonie van Leeuwenhoek	B. Organism made of many cells working together
3. Schleiden & Schwann	C. Observed living "little animals" in pond water
4. Rudolf Virchow	D. First to name "cells" after observing cork
5. Multicellular Organism	E. Stated all plants and animals are made of cells
6. Organelles	F. Scale needed to observe structures inside individual cells
7. Cytoplasm	G. Additional membrane-bound structures inside eukaryotes
8. 1,000 × Magnification	H. Fluid where prokaryotic DNA floats freely

Critical Thinking/Challenging Questions

1. If every cell in your body were identical and not specialized, what problems might you face in daily life? ***Give examples related to body systems.***

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2. If all cells come from existing cells, what do you think would happen if a cell stopped dividing? How would that affect an organism?

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3. **Ask AI:** Explain how a microscope helps us study cells.

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A. True or False:

1. Lysosomes are large organelles primarily found in plant cells to store water and maintain pressure. ()
2. Ribosomes are membrane-bound organelles that produce proteins. ()
3. The cell wall controls which molecules enter and leave the plant cell because it is selectively permeable. ()
4. The smooth endoplasmic reticulum lacks ribosomes and is involved in lipid synthesis and detoxification. ()
5. Chloroplasts and mitochondria both contain their own DNA separate from the nuclear DNA. ()
6. Free ribosomes in the cytoplasm produce proteins destined for export outside the cell. ()
7. The cis face of the Golgi apparatus receives transport vesicles from the endoplasmic reticulum, while the trans face releases finished vesicles. ()

B. Choose the correct answer:

1. Which structure is responsible for storing genetic material in eukaryotic cells?

- a) Cytoplasm
- b) Nucleus
- c) Ribosome
- d) Golgi apparatus

2.What is the main function of mitochondria?

- a) Protein synthesis
- b) Photosynthesis
- c) Energy conversion via cellular respiration
- d) Lipid storage

3.The rigid outer layer composed of cellulose that supports plant cells is called the:

- a) Cell membrane
- b) Nuclear envelope
- c) Cell wall
- d) Cytoplasm

4.Which organelle acts as the cell's sorting and shipping centre by modifying and packaging proteins?

- a) Golgi apparatus
- b) Smooth ER
- c) Lysosome
- d) Nucleolus

5.Thylakoids stacked into grana are internal membrane structures found inside:

- a) Mitochondria
- b) Chloroplasts
- c) Vacuoles
- d) Centrioles

6.Plant cells maintain their rigidity and structural firmness through internal pressure known as:

- a) Selective permeability
- b) Cytoplasmic streaming
- c) Turgor pressure
- d) Glycosylation

7. Why can enzymes inside lysosomes safely digest cellular waste without damaging the rest of the cell?

- a) Cytoplasm neutralizes all active enzymes instantly
- b) The lysosomal membrane acts as a protective boundary keeping enzymes contained
- c) Lysosomes operate only outside the cell boundary
- d) Digestive enzymes remain inactive until released into the nucleus

C. Complete the Sentences:

1. The gel-like fluid filling the interior of the cell where many chemical reactions occur is the _____.
2. Inside the nucleus, a darker region called the _____ produces ribosomes.
3. Small membrane-bound bubbles that carry proteins and lipids from the ER to their next destination are called _____.
4. Plant cells have a single large _____ vacuole that can take up 80–90% of the cell's interior volume.
5. The movement of cytoplasm that helps distribute nutrients and proteins throughout the cell is called cytoplasmic _____.
6. The inner membrane folds of a mitochondrion that increase surface area for energy release are called _____.
7. Attached ribosomes stud the surface of the _____ endoplasmic reticulum.

8. The process of attaching sugar molecules to proteins inside the rough ER to modify their function is known as _____.

D. Identify each of the cell structures in the figure:

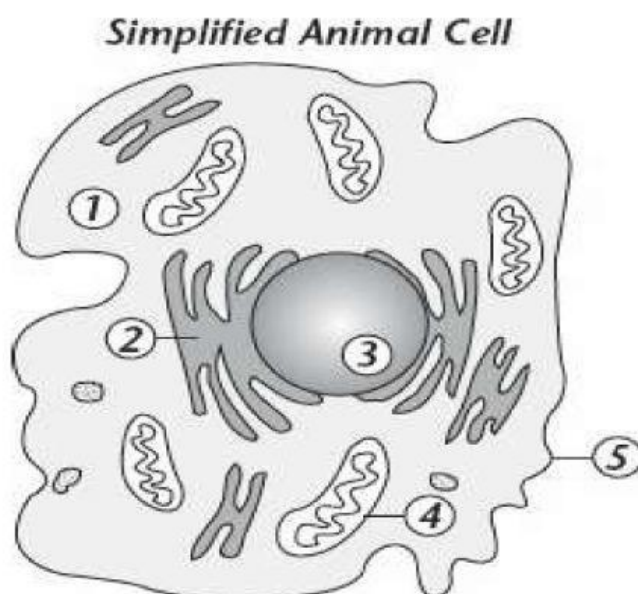
(1) is _____.

(2) is _____.

(3) is _____.

(4) is _____.

(5) is _____.



Critical Thinking/Challenging Questions

- 1. Imagine a cell without ribosomes. What problems would this cell face, and why?**

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- 2. If the mitochondria in a cell stopped working, how would this affect other organelles? Give examples.**

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- 3. AI Task:** Use AI to compare plant cells vs. animal cells. Make a table showing differences in organelles and functions.

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